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Oceans and the law of the sea

Report on the work of the Ad Hoc Working Group of the Whole on the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects

Letter dated 22 April 2014 from the Co-Chairs of the Ad Hoc Working Group of the Whole addressed to the President of the General Assembly

We have the honour to transmit to you the attached report on the work of the Ad Hoc Working Group of the Whole on the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects, which met at United Nations Headquarters on 31 March 2014, pursuant to paragraph 243 of General Assembly resolution 68/70. The report contains, inter alia, in section II, the agreed recommendations to the sixty-ninth session of the General Assembly and guidance for the Group of Experts of the Regular Process and the secretariat of the Regular Process concerning the preparation of the first global integrated marine assessment.

We kindly request that the present letter and the report be circulated as a document of the General Assembly under the agenda item entitled "Oceans and the law of the sea".

(*Signed*) João Miguel **Madureira**

(*Signed*) Fernanda **Millicay**

* A/69/50.

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Report of the Ad Hoc Working Group of the Whole on the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects

I. Report of the Ad Hoc Working Group of the Whole

1. Pursuant to paragraph 243 of General Assembly resolution 68/70, the fifth meeting of the Ad Hoc Working Group of the Whole on the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects, was held at United Nations Headquarters in New York on 31 March 2014.

2. The Co-Chairs of the Working Group, João Miguel Madureira (Portugal) and Fernanda Millicay (Argentina), opened the meeting. Miguel de Serpa Soares, Under-Secretary-General for Legal Affairs, the Legal Counsel, delivered opening remarks on behalf of the Secretary-General.

3. Representatives of 68 Member States, 2 non-member States and 6 intergovernmental organizations and other bodies attended the meeting.[1]

4. The Joint Coordinators of the Group of Experts of the Regular Process established pursuant to paragraph 209 of General Assembly resolution 65/37 A, namely, Lorna Inniss (Barbados) and Alan Simcock (United Kingdom of Great Britain and Northern Ireland), also participated in the meeting.[2]

5. The following supporting documentation and information was available to the meeting: (a) the provisional agenda, annotated provisional agenda and format, including the proposed organization of work; and (b) information on the revised outline of the first global integrated marine assessment, prepared by the Group of Experts.

6. The Working Group adopted the agenda (see annex I to the present report) and agreed on the organization of work, as proposed by the Co-Chairs. A number of delegations made general statements and some delegations announced that they had contributed or intended to contribute to the voluntary trust fund for the purpose of supporting the operations of the Regular Process.

7. Under agenda item 4, the Co-Chairs presented the report of the Bureau of the Working Group and the Working Group took note of it.[3] In its consideration of agenda item 5, the Working Group considered the status of preparation of the first global integrated marine assessment and took note of the updated outline of the assessment. The Joint Coordinators of the Group of Experts addressed the Working Group on the appointments to the pool of experts, the designation and assignment of

[1] A complete list of participants is available on the website of the Division for Ocean Affairs and the Law of the Sea of the Office of Legal Affairs of the Secretariat (http://www.un.org/Depts/los/global_reporting/global_reporting.htm).

[2] A list of the members of the Group of Experts, is available at www.un.org/Depts/los/global_reporting/Group_of_Experts_2013.pdf.

[3] The Bureau is composed of the following Member States: Argentina, Bulgaria, Chile, China, Ecuador, Estonia, Ghana, Greece, Kenya, Republic of Korea, Spain, Sri Lanka, Ukraine, United Republic of Tanzania and United States of America.

experts, the appointment of peer review panels and the challenges in meeting the time schedule for the preparation of the assessment. It was noted that Member States could facilitate the process of appointment of experts to the pool of experts in two ways: by nominating individual experts to address any gaps in expertise in the pool of experts; and by clarifying to regional groups that such nominations should be transmitted for appointment separately from any monthly list of candidatures for election.

8. With reference to the timetable for the preparation of the first global integrated marine assessment, the Working Group decided that the draft of the assessment would be sent to Member States and peer reviewers for their review in two instalments, with the initial draft chapters being circulated by the secretariat of the Regular Process at the end of June 2014 and the entire draft, including updated initial draft chapters, being circulated at the end of August 2014. Member States would then have the opportunity to submit comments on the initial draft chapters in July 2014, should they decide to do so, and to otherwise complete their review of the draft chapters by the end of October 2014.

9. Turning to agenda item 6, the Working Group considered the source of funding for issuance of the summary of the first global integrated marine assessment and agreed to recommend that the General Assembly recall its decision that the summary should be submitted by the Co-Chairs of the Working Group to be issued as a document of the Assembly.

10. Under agenda item 7, the Working Group considered the resources needed to support the Regular Process, including the status of the trust fund established for that purpose. The Working Group received a report from the Secretariat on the status of the Regular Process trust fund. The Secretariat emphasized that currently the funds in the trust fund could only facilitate participation of members of the Group of Experts from developing countries in one meeting of the Group of Experts. The Working Group was reminded that, without additional funding, it would not be possible for those members to attend additional meetings for the preparation of the first global integrated marine assessment.

11. In reference to the hosting of workshops in support of the first cycle of the Regular Process, a report was provided by the host country on the workshop held under the auspices of the United Nations for the northern Indian Ocean, the Arabian Sea, the Red Sea and Gulf of Aden and the Regional Organization for the Protection of the Marine Environment/Regional Commission for Fisheries area (Chennai, India, 27-29 January 2014). One of the co-organizers of the workshop for the South Atlantic, held in Grand Bassam, Côte d'Ivoire, from 28 to 30 October 2013, reported on its outcome. The Working Group took note of the summaries of these workshops (see A/68/766 and A/68/812, respectively). A representative of the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization, speaking also on behalf of the United Nations Environment Programme, reported on the provision of technical and scientific support to the Regular Process.

12. The Working Group considered draft recommendations to the sixty-ninth session of the General Assembly and guidance for the Group of Experts and the secretariat of the Regular Process concerning the preparation of the first global integrated marine assessment, which had been proposed by the Co-Chairs on the basis of discussions with the Bureau of the Working Group. The Working Group

agreed on the text of the recommendations and the guidance (see section II of the present report).

II. Recommendations to the sixty-ninth session of the General Assembly and guidance for the Group of Experts and the secretariat of the Regular Process concerning the preparation of the first global integrated marine assessment

A. Recommendations to the sixty-ninth session of the General Assembly

13. The Ad Hoc Working Group of the Whole agrees on the following recommendations to be submitted to the General Assembly.

(1) The Ad Hoc Working Group of the Whole recommends that the General Assembly take note of the updated outline for the first global integrated marine assessment of the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects (annex II to the present report).

(2) The Ad Hoc Working Group of the Whole recommends that the General Assembly recall its decision that the summary of the first global integrated marine assessment should be submitted by the Co-Chairs of the Working Group to be issued as a document of the Assembly.

(3) The Ad Hoc Working Group of the Whole recommends that the General Assembly recognize the important role of the Bureau of the Working Group in putting into practice the decisions and guidance of the Working Group during the intersessional period, pursuant to paragraph 205 of Assembly resolution 66/231, and requests the Bureau to continue its oversight of the progress of work in order to guide the process towards the completion of the first global integrated marine assessment by 2014.

(4) The Ad Hoc Working Group of the Whole recommends that the General Assembly recognize the work of the Group of Experts of the Regular Process during the second phase of the first assessment cycle and urge regional groups that have not yet done so to appoint experts to the Group of Experts in accordance with paragraph 180 of Assembly resolution 64/71.

(5) The Ad Hoc Working Group of the Whole recommends that the General Assembly recognize the work of the individual members of the pool of experts involved in the preparation of the first global integrated marine assessment.

(6) The Ad Hoc Working Group of the Whole recommends that the General Assembly express its appreciation for the eight workshops held in support of the Regular Process, as identified in the guidelines for workshops (see A/66/189, annex II).

(7) The Ad Hoc Working Group of the Whole recommends that the General Assembly welcome the technical workshops on capacity-building for integrated assessments held in Bangkok and Maputo in 2012 and in Abidjan and Freetown in 2013.

(8) The Ad Hoc Working Group of the Whole recommends that the General Assembly take note of the summaries of the workshops held in Grand Bassam, Côte d'Ivoire, from 28 to 30 October 2013 and in Chennai, India, from 27 to 29 January 2014 (see A/68/766 and A/68/812, respectively).

(9) The Ad Hoc Working Group of the Whole recommends that the General Assembly take note with appreciation of the technical and logistical support provided by the United Nations Environment Programme and the Intergovernmental Oceanographic Commission to the Regular Process and of their support, and the support of other organizations, for the workshops of the Regular Process and to the technical workshops on capacity-building for the conduct of integrated assessments.

(10) The Ad Hoc Working Group of the Whole recommends that the General Assembly note with appreciation the contributions made to the voluntary trust fund for the purpose of supporting the operations of the Regular Process, express its serious concern regarding the limited resources available in the trust fund, and urge Member States, international financial institutions, donor agencies, intergovernmental organizations, non-governmental organizations and natural and juridical persons to make financial contributions to the funds established pursuant to paragraph 183 of General Assembly resolution 64/71 of 4 December 2009 and to make other contributions to the Regular Process.

(11) The Ad Hoc Working Group of the Whole recommends that the General Assembly recall its decision to review the need for sustainability in the activities of the Regular Process and to continue its consideration of the need to ensure predictability and sustainability of financial resources to support the operations of the Regular Process.

(12) The Ad Hoc Working Group of the Whole recommends that the General Assembly recognize the support provided by the Division for Ocean Affairs and the Law of the Sea as the secretariat of the Regular Process, while also recognizing its already significant resource constraints.

(13) The Ad Hoc Working Group of the Whole recommends that its next meeting be convened in the first half of 2015.

B. Guidance for the Group of Experts and the secretariat of the Regular Process concerning the preparation of the first global integrated marine assessment

14. The Ad Hoc Working Group of the Whole decides on the following guidance for the Group of Experts and the secretariat of the Regular Process concerning the preparation of the first global integrated marine assessment.

(1) The Ad Hoc Working Group of the Whole requests the Group of Experts to conduct any necessary consultations that still need to be made with the relevant international bodies and forums for the Arctic and Antarctic.

(2) The Ad Hoc Working Group of the Whole requests the Group of Experts to identify gaps in the areas of expertise in the pool of experts and further requests the secretariat of the Regular Process, in consultation with the

Bureau, to send invitations to Member States to appoint experts to address any such gaps.

(3) The Ad Hoc Working Group of the Whole urges the Group of Experts to finalize the designation and assignment of experts to the chapters of the first global integrated marine assessment of the Regular Process as soon as possible, for approval by the Bureau, to enable the Group of Experts to finalize its work in the preparation of the assessment.

(4) The Ad Hoc Working Group of the Whole further urges the Group of Experts to propose the arrangements for the selection of the panel of peer reviewers from the members of the pool of experts of the Regular Process, for approval by the Bureau, taking into account the need to ensure that the members of the panel of peer reviewers were not previously involved in the preparation of the working papers or chapters which they are asked to review.

(5) The Ad Hoc Working Group of the Whole requests the secretariat of the Regular Process to send the draft of the first global integrated marine assessment to Member States and peer reviewers for their review in two instalments, namely, the initial draft chapters at the end of June 2014 and the entire draft, including updated initial draft chapters, at the end of August 2014. The Ad Hoc Working Group of the Whole considers that, under this arrangement, Member States will have the opportunity to submit comments on the initial draft chapters in July, should they decide to do so, and to otherwise complete their review of the draft chapters by the end of October 2014.

(6) The Ad Hoc Working Group of the Whole requests the Group of Experts to revise the first global integrated marine assessment in the light of the comments received from the panel of peer reviewers and Member States by the end of October 2014, and to present the revised draft, together with the comments received, to the Bureau for approval by the Bureau and transmission to the Ad Hoc Working Group of the Whole for its consideration.

(7) The Ad Hoc Working Group of the Whole decides that the Group of Experts, in consultation with the Bureau and the secretariat of the Regular Process, should consider ways to improve coordination with other agencies and bodies conducting assessments that involve the oceans, including through the sharing of information and data on assessments.

Annex I

Agenda of the fifth meeting of the Ad Hoc Working Group of the Whole on the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects

1. Opening of the meeting.
2. Adoption of the agenda.
3. Organization of work.
4. Report of the Bureau of the Ad Hoc Working Group of the Whole.
5. Preparation of the first global integrated marine assessment of the Regular Process.
6. Summary of the first global integrated marine assessment.
7. Resources needed to support the Regular Process, including the status of the Regular Process trust fund.
8. Workshops in support of the first cycle of the Regular Process.
9. Adoption of recommendations to the sixty-ninth session of the General Assembly.
10. Other matters.
11. Closure of the meeting.

Annex II

Outline[a] for the First Global Integrated[b] Marine Assessment of the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects[c]

Part I
Summary

This part would not follow the pattern of the main report, but highlight the most significant conclusions. It would aim to bring out:

(a) *The way in which the assessment has been carried out;*

(b) *Overall assessment of the scale of human impact on the oceans and the overall value of the oceans to humans;*

(c) *The main threats to the marine environment and human economic and social well-being;*

(d) *The needs for capacity-building and effective approaches to meeting such needs; and*

(e) *The most serious gaps in knowledge and possible ways of filling them.*

Part II
The context of the assessment

Chapter 1
Planet: oceans and life

This chapter would be a broad, introductory survey of the role played by the oceans and seas in the life of the planet, the way in which they function, and humans' relationships to them.

Chapter 2
Mandate, information sources and method of work

2.A. Objectives, scope and mandate of the Regular Process, as agreed by the General Assembly.

2.B. Explanation of the rationale for the Regular Process, and the need to ensure regular assessments of the marine environment, including socioeconomic aspects

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[a] The present annex contains the outline as adopted by the Ad Hoc Working Group of the Whole at its third meeting (23-27 April 2012), with the chapters numbered sequentially. Part VI was further fine-tuned by the Group of Experts and accepted by the Bureau. The Working Group took note of the updated outline on 31 March 2014.

[b] In this context, "integrated" means assessing impacts from a number of individual stressors and considering cumulative effects on marine ecosystems, i.e., the overall impact from multiple processes and activities overlapping in time and space.

[c] The first global integrated marine assessment will not include any analysis of policies.

(including an explanation of what is new in the first global integrated marine assessment).

2.C. General issues relating to the collection of environmental, economic and social data relating to the oceans and seas and human uses of them, including national, regional and global aggregation and analysis of information and data, quality assurance of data and access to information.

2.D. Description of the procedures agreed for carrying out the first global integrated marine assessment, and the way in which these procedures have been implemented, including the approach to the science/policy interface, the selection of contributors, the choices made on the establishment of baselines, the description and categorizing of uncertainties and the quality assurance of data.

Part III
Assessment of major ecosystem services from the marine environment (other than provisioning services)[d]

Several chapters in this part would draw heavily on the work of the Intergovernmental Panel on Climate Change. The aim would be to use the work of the Panel, as well as the framework of the United Nations Framework Convention on Climate Change, not to duplicate it or challenge it.

Chapter 3
Scientific understanding of ecosystem services

Overview of the state of scientific understanding of ecosystem services, including data collection, information management, differences between different parts of the world and research needs.

Chapter 4
The oceans' role in the hydrological cycle

4.A. The interactions between the seawater and freshwater segments of the hydrological cycle: the rate of turnover and changes in it — freshwater fluxes into the sea and their interaction with it, including the effects on the marine environment of changes in those fluxes as a result of changes in continental ice sheets and glaciers, and of anthropogenic changes in those fluxes (for example, from dam-building or increased abstraction) — reduction in ice coverage — sea-level changes.

4.B. Environmental, economic and social implications of ocean warming, sea-level change, including the implications of rises in sea level for security and implications for low-lying countries, and anthropogenic and other changes to freshwater fluxes into the sea.

4.C. Chemical composition of seawater: salinity and nutrient content of the different water bodies — changes in salinity and nutrient content.

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[d] The main provisioning service from the oceans is food, which is covered in part IV (Assessment of cross-cutting issue: food security and food safety). Other provisioning services are covered in part V (Assessment of other human activities and the marine environment).

4.D. Environmental, economic and social implications of changes in salinity and nutrient content.

4.E. The oceans' role in heat transportation: ocean warming — the overall influence of the oceans on surface temperature and circulation patterns — oceanic oscillations — El Niño and similar events.

4.F. Environmental, economic and social impacts of changes in ocean temperature and of major ocean temperature events.

Chapter 5
Sea/air interaction

5.A. The role of the seas in regulating atmospheric fluxes and concentration of oxygen and carbon dioxide (oxygen production, carbon dioxide sequestration): role of the oceans and seas as carbon dioxide sinks — issues about maintaining or enhancing that role.

5.B. Scale and significance of the coal industries.

5.C. Meteorological phenomena related to the oceans: hurricanes and typhoons — monsoon rains — trade winds.

5.D. Environmental, economic and social implications of trends in meteorological phenomena, including changes in the frequency and intensity of storms, effects on seas covered by ice for much of the year and the communities that depend on them, and the implications for small island developing States.

5.E. Ocean acidification: degree and extent of ocean acidification resulting from human activities (including coral bleaching).

5.F. Environmental, economic and social implications of trends in ocean acidification (with cross-reference to part IV on assessment of cross-cutting issue: food security and food safety).

Chapter 6
Primary production, cycling of nutrients, surface layer and plankton

6.A. Global distribution of primary production: the reasons for the present distribution — factors affecting cycling of nutrients and the variability and resilience of the base of the food web — changes known and foreseen, including changes in ultraviolet radiation from ozone-layer problems.

6.B. Surface layer and plankton: role of the surface layer — factors influencing it — variations in plankton species.

6.C. Environmental, economic and social implications of trends in primary production and other factors affecting the inherent variability and resilience of the base of the food web (with cross-reference to part IV on assessment of cross-cutting issue: food security and food safety).

Chapter 7
Ocean-sourced carbonate production

Role of ocean-sourced carbonate production in the formation of atolls and beaches — potential impacts of ocean acidification.

Chapter 8
Aesthetic, cultural, religious and spiritual ecosystem services derived from the marine environment

Scale of human interactions with the oceans and seas on the aesthetic, cultural, religious and spiritual levels, including burials at sea, and ways in which these interactions may be affected by other changes. There would also be a cross-reference to chapter 27 (Tourism and recreation).

Chapter 9
Conclusions on major ecosystems services other than provisioning services

Summary of the main issues, including capacity-building needs and information gaps, as identified in chapters 3 to 8.

Part IV
Assessment of the cross-cutting issues: food security and food safety

This part would draw substantially on assessments carried out by the Food and Agriculture Organization of the United Nations (FAO). The aim would be to use the work of FAO, not to duplicate it or challenge it.

Chapter 10
Oceans and seas as sources of food

Scale of human dependence on the oceans and seas for food and pressures of increased demands, the variations between different parts of the world, and the extent to which some parts of the world depend on other parts for fish and seafood and the contribution of living marine resources to food security.

Chapter 11
Capture fisheries

11.A. Commercial fish and shellfish stocks: present status of fish and shellfish stocks that are commercially exploited and factors affecting them, including fishing practices — scale of economic activity (large-scale commercial, artisanal and recreational[c] fishing).

11.B. Other fish and shellfish stocks: present status of fish and shellfish stocks exploited by artisanal or subsistence fishing — significance for livelihoods — present status of fish stocks not currently exploited.

11.C. Impacts of capture fisheries (large-scale commercial, artisanal and subsistence fishing) on marine ecosystems, through effects on the food web, by-catch (fish, mammals, reptiles and seabirds), and different fishing gear and methods, including the impact of discards on other wildlife, and impacts from lost or abandoned fishing gear.

[c] See also chapter 27 (Tourism and recreation) on recreational fishing.

11.D. Effects of pollution on living marine resources: possible effects of chemical and radioactive pollution on stocks of living marine resources used for food — implications of potential threats of such pollution.

11.E. Illegal, unreported and unregulated fishing:[f] scale, location and impacts on fish stocks.

11.F. Significant environmental, economic and/or social aspects[g] in relation to capture fisheries.

11.G. Projections of the status of fish and shellfish stocks over the next decade in the light of all relevant factors.

11.H. Identify gaps in capacity to engage in capture fisheries and to assess the environmental, social and economic aspects of capture fisheries and the status and trends of living marine resources.

Chapter 12
Aquaculture

12.A. Scale and distribution of aquaculture: locations of aquaculture activities — species cultivated — economic significance and contribution to food security.

12.B. Aquaculture inputs and effects: demand for coastal space — demand for fish meal from capture fisheries.

12.C. Pollution and contamination from aquaculture: use of chemicals — interactions of escaped stock with wild stocks.

12.D. Significant environmental, economic and/or social aspects[g] in relation to aquaculture.

12.E. Projections of the role of aquaculture over the next decade in the light of all relevant factors.

12.F. Identify gaps in capacity to engage in aquaculture and to assess the environmental, social and economic aspects of aquaculture.

Chapter 13
Fish stock propagation

13.A. Rebuilding depleted stocks through marine ranching and release of fish from hatcheries.

13.B. Transplantation of living marine resources to different ecosystems.

13.C. Effects of artificial propagation on natural ecosystems.

13.D. Significant environmental, economic and/or social aspects[g] in relation to fish stock propagation.

13.E. Identify gaps in capacity to engage in fish stock propagation and to assess the environmental, social and economic aspects of fish stock propagation.

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[f] As defined in the FAO International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing.

[g] The first global integrated marine assessment will not include any analysis of policies.

Chapter 14
Seaweeds and other sea-based food

14.A. Scale, location of collection and significance of food derived from the oceans and seas other than fish and shellfish — projected developments over the next decade.

14.B. Potential impacts of collection of seaweed and other sea-based food.

14.C. Significant environmental, economic and/or social aspects[g] in relation to the collection of seaweeds and other sea-based food.

14.D. Identify gaps in capacity to assess the environmental, social and economic aspects of seaweed and other sea-based food.

Chapter 15
Social and economic aspects of fisheries and sea-based food

15.A. Relationship with human health: health benefits and problems from sea-based food, including the potential to supplement protein-poor diets — chemical, toxic and bacterial contamination.

15.B. Scale and significance of employment in fisheries and aquaculture: numbers employed — relationship of earnings to local median earnings — scale of injuries to fishers compared to other industries.

15.C. Role of fisheries in social structure: role of fishers in local societies — extent to which fishing is the sole source of livelihood — extent to which local societies are dependent on fisheries and aquaculture.

15.D. Relationship between catch areas, ownership and operation of fishing vessels, landing ports and consumption distribution: the benefits which States (and economic operators based in them) obtain from fisheries and aquaculture.

15.E. Implementation of international fisheries agreements.

15.F. Effects of changes in markets: growth of long-distance transport of landed fish and shellfish.

15.G. Links to other industries: scale of economic activity dependent on fisheries and aquaculture, both in providing equipment (especially ships) and in processing output in value chains.

15.H. Identify gaps in capacity to engage in fisheries and to assess the environmental, social and economic aspects of fisheries.

Chapter 16
Conclusions on food security

16.A. Summary of the main issues, including capacity-building needs and information gaps, identified in chapters 10 to 15.

16.B. Longer-term development of food from marine resources — impacts of climate change in the context of the United Nations Framework Convention on Climate Change and based on the conclusions of the Intergovernmental Panel on Climate Change — impacts of population changes — relation with changes in terrestrial food production.

Part V
Assessment of other human activities and the marine environment

Chapter 17
Shipping

17.A. Significance of shipping in world trade: major shipping routes — amount of world trade carried by sea — economic benefits to States from shipping activities, including as flag States — projections of changes over the next decade, including changes in shipping possibilities at high latitudes as a result of changes in ice cover.

17.B. Threats from shipping: locations, scale and trends — pollution from shipping (covering all forms of pollution regulated by annexes I to VI to the International Convention for the Prevention of Pollution from Ships, anti-fouling treatments and noise) — the acoustic impact of shipping on marine organisms — shipping disasters, including their longer-term effects — invasive species through ballast water and other biosecurity risks — transport of ships for ship-breaking — risks to coastal States from shipping compared to their trade.

17.C. Threats to the marine environment posed by the transport by sea of hazardous and noxious substances and of radioactive substances.

17.D. Links to other industries and commerce: ship-building — ship-breaking — bunkers — insurance, chartering and navigation services.

17.E. Significant environmental, economic and/or social aspects[g] in relation to shipping.

17.F. Identify gaps in capacity to engage in shipping and to assess the environmental, social and economic aspects of shipping, including implementation of international conventions and other instruments.

Chapter 18
Ports

18.A. Scale and significance of port activities: locations and traffic — projected growth, including the implications of changes in shipping routes considered under issue 17.A — economic benefits to port States.

18.B. Impacts of the creation and maintenance of ports: scale of port development — dredging for navigational purposes — management of ships' waste, including effects of charging regimes — pollution from ships in port — remobilization of pollutants by dredging.

18.C. Significant environmental, economic and/or social aspects[g] in relation to the construction and management of ports.

18.D. Identify gaps in capacity to assess the environmental, social and economic aspects of ports and monitoring their impact on the marine environment.

Chapter 19
Submarine cables and pipelines

19.A. Scale, location and role of cables and cable-laying: role in international communications and the Internet — projected developments over the next decade — employment — links to other industries — economic benefits.

19.B. Potential pollution and physical harm from cables and pipelines — during construction/installation — during use — after decommissioning.

19.C. Significant environmental, economic and/or social aspects[g] in relation to pipelines and cables and pipeline and cable-laying.

19.D. Identify gaps in capacity to engage in cable-laying and pipeline installation and to assess the environmental, social and economic aspects of cable-laying and pipeline installation.

Chapter 20
Coastal, riverine and atmospheric inputs from land

20.A. Municipal wastewater, including the impact of major cities and of cruise ships in harbours: scale and degree of treatment — nature of impact, both through direct and riverine inputs and including impacts on microbiological quality of coastal waters, as well as economic impacts of adverse effects on water quality, especially on aquaculture and tourism — projected developments over the next decade.

20.B. Industrial discharges, including point sources: hazardous substances, including persistent organic pollutants and heavy metals — hydrocarbons — nutrients — scale of discharges (direct and riverine inputs and atmospheric transport) — degree of treatment — nature of impact, including impacts on human health through food chain — projected developments over the next decade.

20.C. Agricultural run-off and emissions: scale (direct and riverine inputs and atmospheric transport of nutrients) — nature of impact — projected developments over the next decade.

20.D. Eutrophication: combined effects of municipal, industrial and agricultural inputs (including algal blooms), considering also the effects of turbidity in coastal waters and denitrification in estuaries — cross-reference to effects on fish stocks and effects on the food web.

20.E. Inputs of radioactive substances from both nuclear and non-nuclear industries — actual, potential and suspected impacts of inputs of radioactive substances.

20.F. Significant environmental, economic and/or social aspects[g] in relation to managing the impact of land-based inputs.

20.G. Identify gaps in capacity to assess the environmental, social and economic aspects related to coastal, riverine and atmospheric inputs from land.

20.H. Scale of desalinization and its environmental impacts. Identify gaps in capacity to engage in desalinization and to assess the environmental, social and economic aspects of desalinization.

Chapter 21
Offshore[h] hydrocarbon industries

21.A. Scale and significance of the offshore hydrocarbon industries and their social and economic benefits.

21.B. Impacts from exploration, including seismic surveys and exploitation and decommissioning.

21.C. Offshore installation disasters and their impacts, including longer-term effects.

21.D. Significant environmental, economic and/or social aspects[g] in relation to offshore hydrocarbon installations.

21.E. Identify gaps in capacity to engage in offshore hydrocarbon industries and to assess the environmental, social and economic aspects of offshore hydrocarbon industries.

Chapter 22
Other marine-based energy industries

22.A. Scale of wind, wave, ocean thermal and tidal power generation — current, planned and forecast.

22.B. Environmental benefits and impacts of wind, wave, ocean thermal and tidal power generation.

22.C. Expected economic performance of wind, wave, ocean thermal and tidal power generation.

22.D. Significant environmental, economic and/or social aspects[g] in relation to offshore wind, wave, ocean thermal and tidal power installations.

22.E. Identify gaps in capacity to engage in offshore wind, wave, ocean thermal and tidal power generation and to assess the environmental, social and economic aspects of offshore wind, wave, ocean thermal and tidal power generation.

Chapter 23
Offshore mining industries

23.A. Scale and significance of sand and gravel extraction: environmental impacts of sand and gravel extraction.

23.B. Economic benefits of sand and gravel extraction.

23.C. Developments in other seabed mining: current state and potential scale.

23.D. Significant environmental, economic and/or social aspects[g] in relation to offshore mining industries.

23.E. Identify gaps in capacity to engage in offshore mining and to assess the environmental, social and economic aspects of offshore mining.

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[h] "Offshore" in this chapter and the following two chapters covers all installations that are situated in the marine environment, whether in internal waters or in maritime areas subject to the sovereignty or jurisdiction of States.

Chapter 24
Solid waste disposal

24.A. Types and amounts of waste dumped at sea, including explosives and hazardous liquids and gases, and potential impacts on the marine environment — projected levels of dumping over the next decade.

24.B. Significant environmental, economic and/or social aspects[g] in relation to solid-waste dumping at sea.

24.C. Identify gaps in capacity to engage in solid-waste disposal at sea and to assess the environmental, social and economic aspects of solid-waste disposal at sea.

Chapter 25
Marine debris

25.A. The multiple causes of marine debris, including lack of controls on land-based disposal of waste, lack of management of beach litter and ship-generated litter, and the scale and distribution of the problem.

25.B. Approaches to combating marine debris — range of application — cases where progress has been made.

25.C. Identify gaps in capacity to control marine debris and to assess the environmental, social and economic aspects of marine debris.

Chapter 26
Land/sea physical interaction

26.A. Land reclamation: scale and location of land reclamation and habitat modification and the habitats affected — significant environmental, economic and/or social aspects[g] in relation to land reclamation and habitat modification.

26.B. Erosion of land by the sea: economic and social costs of land erosion — effects on marine and coastal habitats of coastal defences, including beaches and fringing islands — implications for small island developing States — costs of coastal defences — significant environmental, economic and/or social aspects[g] in relation to erosion of land by the sea.

26.C. Sedimentation changes: sedimentation in the marine environment as a result of land erosion by rainfall and rivers — decline in marine sedimentation as a result of water management — effect of both types of change on marine and coastal habitats, including estuaries, deltas, submarine canyons — significant environmental, economic and/or social aspects[g] in relation to control of the causes of sedimentation change.

26.D. Identify gaps in capacity to assess land/sea physical interaction.

Chapter 27
Tourism and recreation

27.A. Location and scale of tourism and recreation, including cruise ships: employment — economic benefits of tourism — economic benefits resulting from protecting marine biodiversity.

27.B. Recreational and sport fishing and its impact on marine wildlife.

27.C. Impacts of recreational and tourist vessels on sensitive sea areas.

27.D. Contribution of tourism to problems of sewage and pollution, including from cruise ships (see also heading 20A (Municipal wastewater)).

27.E. Location and scale of other environmental impacts of tourism, including habitat disturbance and destruction.

27.F. Relationship of tourism to protection of marine species and habitats (for example, whale-watching and whale sanctuaries).

27.G. Significant environmental, economic and/or social aspects[g] in relation to managing the environmental impacts of tourism on the marine environment.

27.H. Identify gaps in capacity to assess the interface of tourism and the marine environment and the environmental, social and economic aspects of tourism.

Chapter 28
Desalinization

Scale of desalinization and its social and economic benefits. Identify gaps in capacity to engage in desalinization and to assess the environmental, social and economic aspects of desalinization.

Chapter 29
Use of marine genetic resources

29.A. Current topics, locations and scale of marine scientific research and exploitation, including the uses being made of marine genetic resources and associated issues such as intellectual property rights and impacts.

29.B. Significant environmental, economic and/or social aspects[g] of marine scientific research relating to, and exploitation of, marine genetic resources.

29.C. Identify gaps in capacity to engage in marine scientific research relating to, and exploitation of, marine genetic resources and to assess the environmental, social and economic aspects of them.

Chapter 30
Marine scientific research

30.A. Topics, scale and location of marine scientific research.

30.B. Significant environmental, economic and/or social aspects[g] in relation to marine scientific research.

30.C. Identify gaps in capacity to engage in marine scientific research and to assess the environmental, social and economic aspects of marine scientific research, including transfer of technology.

Chapter 31
Conclusions on other human activities

Summary of the linkages between driving forces related to human activities and the state of the marine environment, having regard to the various types of pressure.

Chapter 32
Capacity-building in relation to human activities affecting the marine environment

General conclusions on the identification of gaps in capacity to engage in the human activities described above and to assess the environmental, social and economic aspects of human activities affecting the marine environment.

Part VI
Assessment of marine biological diversity and habitats

Chapter 33
Introduction

The aim of this part is (a) to give an overview of marine biological diversity and what is known about it; (b) to review the status and trends of, and threats to, marine ecosystems, species and habitats that have been scientifically identified as threatened, declining or otherwise in need of special attention or protection; (c) to review the significant environmental, economic and/or social aspects[g] in relation to the conservation of marine species and habitats; and (d) to identify gaps in capacity to identify marine species and habitats that are identified as threatened, declining or otherwise in need of special attention or protection and to assess the environmental, social and economic aspects of the conservation of marine species and habitats.

Section A — Overview of marine biological diversity

Chapter 34
Scale of marine biological diversity

Main gradients of diversity for species, communities and habitats (coastal to abyssal, equatorial to polar, substrate type, salinity).

Chapter 35
Extent of assessment of marine biological diversity

Proportion of major groups of species and habitats in the different marine regions that are assessed on a systematic basis for status, trends and threats.

Chapter 36
Overall status of major groups of species and habitats

Summary by major group and marine region, of the status, trends and threats, including the cumulative effects of pressures, shown by those assessments.

Division 36.A. North Atlantic

Division 36.B. South Atlantic

Division 36.C. North Pacific

Division 36.D. South Pacific

Division 36.E. Indian Ocean

Division 36.F. Open-ocean deep sea

Division 36.G. Arctic Ocean

Division 36.H. Southern Ocean

Each of these divisions will be structured on the following pattern:

1. *Introductory paragraph on the region — scale of shelf, deep sea, island, etc., and human populations, economies and livelihoods associated with the sea*

2. *Coastal area*

(a) *Status and trends of biodiversity*

(i) *Fish (including pelagic macroinvertebrates like squid, shrimp, etc.)*

(ii) *Benthic communities*

(iii) *Zooplankton communities*

(iv) *Primary producers — phytoplankton and macroalgae*

(v) *Other biota with important trends — any marine mammals, seabirds or marine reptiles species with particularly important trends*

(b) *Major pressures in the coastal area and major groups impacted by the pressures*

(c) *Major ecosystem services being impacted by the pressures*

(i) *Services to ecosystem being lost*

(ii) *Services to humans being lost*

3. *Shelf or boundary-current area (to be structured in the same way as the coastal area)*

4. *Treatment of any special areas — semi-enclosed seas, etc.*

5. *Special conservation status issues*

(a) *For taxonomic groups*

(b) *For major types of habitats*

6. *Factors for sustainability*

Section B — Marine ecosystems, species and habitats scientifically identified as threatened, declining or otherwise in need of special attention or protection

This section will include marine ecosystems, processes, species and habitats requiring special attention and will be structured in the light of the overview in section A.

I. Marine species

Chapter 37
Marine mammals

Chapter 38
Seabirds

Chapter 39
Marine reptiles

Chapter 40
Sharks (and other elasmobranchs)

Chapter 41
Tuna and billfish

II. Marine ecosystems and habitats

Chapter 42
Cold-water corals

Chapter 43
Warm-water corals

Chapter 44
Estuaries and deltas

Chapter 45
Open-ocean deep-sea biomass

Chapter 46
Hydrothermal vents and cold seeps

Chapter 47
High-latitude ice

Chapter 48
Kelp forests and sea grass

Chapter 49
Mangroves

Chapter 50
Salt marshes

Chapter 51
The Sargasso Sea

Chapter 52
Seamounts and other submarine geological features potentially threatened by disturbance

Section C — Environmental, economic and/or social aspects of the conservation of marine species and habitats and capacity-building needs

Chapter 53
Significant environmental, economic and/or social aspects in relation to the conservation of marine species and habitats

Chapter 54
Capacity-building needs

Identification of gaps in capacity to identify marine species and habitats that are identified as threatened, declining or otherwise in need of special attention or protection and to assess the environmental, social and economic aspects of the conservation of marine species and habitats.

Section D — Summary on marine biological diversity

Chapter 55
Summary on marine biological diversity

Summary of the main issues, including capacity-building needs and information gaps, identified in chapters 33 to 54.

Part VII
Overall assessment

Chapter 56
Overall assessment of human impact on the oceans

56.A. Consideration of the implications of cumulative pressures on the overall state of the oceans and seas.

56.B. Evaluations under different methods of assessing overall human impact on the oceans and seas.

Chapter 57
Overall value of the oceans to humans

Evaluations under different methods of the benefits accruing to humans from the oceans, including assessment of the costs of environmental degradation.